Laminoscintiscanning

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The lamino-scintiscanner which is a newly originated device by us to obtain stereographic observations of the liver and the tumor in it, was utilized to patients who was suspected of hepatic tumors. The lamino-scintiscanner consists of a couple of γ-spectrometers and scintillation probes which are fixed at right angles to one another at the focus of each honey cone collimator. Pulses from both scintillation probes are fed to multiplying circuit after pulse height analysis and the product of the average numbers of the pulses which arose from both scintillation probes within the selected time intervals (0.1 sec.) are fed to the memory type oscilloscope.

According to the results of experimental scanning of liver phantom bearing tumors, detecting ability of the lamino-scintiscanner is much higher than ordinary scintiscanner with respect to the size and site of detectable tumors.

By the lamino-scintiscanning, it is possible to recognize a cold area measuring 1.5 cm. in diameter situated at less than 5 cm. in depth and 3 cm. in diameter at more than 7 cm. in depth.

Subtruction and Addition Technique on Dual Opposed five-inch Crystal Scanner

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I) Design of dual opposed five-inch crystal scanner. Each detector system is consisted with five-inch crystal, pulse hight analyser and rate meter. Both puls hight analysers are connected to addition and subtruction selector, scaler and photo-dot scanning recorder. On the other hand, each rate meter is connected to two channel pen recorder respectively. The two scanning leads are exactly opposed, data collected by each crystal may be used separately, additively and subtructively.

Each head can be inclined up to forty-five degree in angle and both axis can be crossed at right angle. The honey comb type collimaters have 109 holes and those focal depth are II and 20 cm.

II) Methods of analysis of geometry.

Tsuyat-scanning test and responce measurments were performed using opposed counters and several type of collimators and methods of subtruction and addition, combinationally. The two opposed heads are removed from the scanner and set of repose. Point sources of Na ^{131}I were moved in area of two dimensions on the axis of counters by scanning machine and addition and subtruction technique were tested.

III) Result and conclusion.

1) One of the most difficult problem in the construction of the large crystal scanner was collimator design.

Enlargement of the relative are existing at distal side of focus of 11cm focal collimator was bigger than that of 20 cm collimator. The focal from of 20cm collimator is

longer and the organ such as liver can be contained within fifty percent area.

2) Halflayer-tomoscintigram was obtained by subtruction technique. The influence of relative area existing at the distal side from focus and half layer of organ were eliminated by subtruction.

3) Tomoscintigram was obtained by crossing method of detector axis and addition technique.

20 cm focus collimators were used on both sides and inclined to suitable angle and data from both counters were added.

Experience of Put to Use the Contour Brain Scanner

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It has been very popularizing diagnosis that the decide of localization of brain tumours are able to by scanning method after injection fo radioactive iodinated human serum albumin labelled with iodine-131 (RIHSA), though we have set up the automatic contour brain scanner which was ordered from TOSHIBA RADIATION CORPORATION, yet the usual rectilinear scanning method are not so evaluation of such as spherical cranium. This design has developed and utilized on clinic in Canada.

This automatic contour brain scanner operate as follows, the technique utilizes twin balanced scintillation detectors which simultaneously survey both sides of the head from front to back in a series of seven or eight parasagittal concentric arcs, and present this information on a chart, these arched tracks are consist of counting rates on the right side compared with those on the left.

Besides more two para-tracks are i.e. excessive scanner makes which present for subtraction of the countrate from right and left sides of the head by the difference circuit, because, these para-tracks are meaming that representation of the locate brain tumours may be there.

The result of the imitative brain tumour test by contour brain scanning so very clearly appeared in para-tracks, that attached collimator of detector are multi-focus (i.e. 5, 10 and 15 cm focusing) of 36 holes.

The Whole Body Counter at Kyoto University

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The whole body counter at Kyoto University was planned for the application in the field of radiological health, clinical metabolic studies and medical diagnostic investigations, and was completed in March, 1966 by the Mitsubishi Atomic Power Industries.

Description of Counter

The whole body counter is located in the Central Clinical Radioisotope Division at Kyoto University Medical School. The laboratory consists of a waiting room, shower and locker room, iron room and operation room, iron room and operation room. The iron walls, ceiling and floor of the iron room are 20 cm thick, with the inner surfaces lined with 3 mm Pb sheet. The internal dimensions are $220 \times 86 \times 170$ cm. The radioactivity of the materials has been premonitored.

The 8" NaI (Tl) scintillation probe con-